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Completed suicide and criminality: lack of a direct relationship

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SYNOPSIS A comparison was made of the crime rate among 181 suicides and 181 controls, representing an unselected sample of the population matched with the suicides for sex, age, marital status, place of residence and occupational level. Sixteen per cent of the suicides and 11% of the controls had a criminal record, a statistically insignificant difference. In addition, no significant differences were found in the proportion of recidivists and of violent offenders, or in the number of their offences and convictions. A significant difference was found regarding the distribution of the offences by particular laws: more than a half of the offences committed by criminal suicides concerned violations of the road traffic laws, this being in agreement with the hypothesis that risky, accident-prone behaviour is a suicidal behaviour equivalent.

INTRODUCTION

A mutual relationship between suicidal and criminal behaviour was regarded by Durkheim (1897) as controversial and has remained so up to the present. In the first edition of his summary of research findings on suicidal behaviour Lester (1972) states: 'It seems likely, that there is no association between criminality and suicidal behaviour'. In the second edition (Lester, 1983) he states the contrary: 'Research seems to find a consistent association between criminality and suicide'. That an association may exist between completed suicide and criminal behaviour is suggested by various psychological, clinical and epidemiological data.

Ettlinger (1964) and Beskow (1979), who investigated the personal history of suicides and controls, reported significantly more criminal behaviour in the former group. However, Ettlinger used a control group which was unrepresentative of the general population, and the finding has not been confirmed by other workers (Bolin *et al.* 1968; Hagnell & Rorsman, 1980). Juvenile delinquents (Marohn *et al.* 1982) and violent criminals (Phillip, 1969) have been deemed to be at increased risk for suicide, but this association has not been corroborated by sufficient data.

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The completed suicide rate has been reported as higher among prisoners than in the general population by some authors (Fully *et al.* 1965; Cosyns & Wilmotte, 1974; Topp, 1979), but not by others (Phillip, 1969; Rieger, 1971). Suicide occurred usually during the first few weeks in custody, among individuals who were indicted but not yet convicted (Luthe, 1972; Cosyns & Wilmotte, 1974; Topp, 1979), which points to its reactive nature.

Some criminals are violent offenders and so are aggressive by definition. Yarvis (1972) found a majority of incarcerated felons to have a history of overt aggressive manifestations. Not only has suicide been viewed as an inwardly directed aggressive act (Freud, 1917; Ringel, 1969), but a higher incidence of overt aggressive and violent behaviour has also been found in completed suicides (Farberow *et al.* 1966; Myers & Neal, 1978). Suicidal notes confirm that aggression against others is the principal motive for completed suicide (Capstick, 1960*a*). However, violent crimes represent only a small proportion (5–15%) of criminality in general (Göppinger, 1980), and violent offenders certainly cannot be regarded as representative of the entire criminal population. Further, hostility is not unanimously considered to be a common emotion in the suicidal state (Shneidman, 1985).

There is a postulated relationship between suicide and homicide. A close intrapsychic

association between both phenomena has been pointed out (Freud, 1917; Menninger, 1938; Wolfgang, 1968), and suicidal and homicidal behaviour are frequently related (Wolfgang, 1958; West, 1965; Modestin & Böker, 1985). However, homicide is mostly a violent criminal act of a special character, particularly if it is followed by suicide (Wolfgang, 1958; Dorpat, 1966). The close relationship, therefore, between homicide and suicide cannot serve as a prototype for the relationship between criminal behaviour and suicide.

Alcohol may represent an acquired basis for both forms of behaviour. There is an association between completed suicide and alcoholism (Robins *et al.* 1959; Dorpat & Ripley, 1960; Kessel & Grossman, 1961; Barraclough *et al.* 1974), as well as between alcoholism and criminality (Guze *et al.* 1962; Bartholomew & Kelley, 1965; Smith, 1978). At the time of their criminal act a considerable number of offenders are under the influence of alcohol (Göppinger, 1980), and so frequently are suicidal individuals at the time of committing their successful suicide (James, 1966).

A significant correlation between the high suicide rate and the high rate of delinquency has been reported in some ecological studies (McCulloch *et al.* 1967; Bagley *et al.* 1973; Bojanovsky, 1978) but has not been confirmed in others (Porterfield, 1952; Lester, 1970).

Thus, in summary, despite the large body of data relating to a possible association between criminal behaviour and suicide, no unequivocal conclusions can be drawn. Furthermore, there seem to be extremely few studies devoted specifically to this issue. An extensive literature search yielded no more than two such studies. The first (Tuckman & Youngman, 1965) compared 172 suicides with 184 controls who had died from natural causes, matched for age, sex and race, in respect of the criminality rate. No significant difference between the two groups was found in the number of criminal individuals, the number of arrests, the seriousness of the charges and the severity of the sentences. The second study (Bradley, 1979) investigated arrest records of 485 suicides and 485 controls, matched for age, sex, race, and place of residence. The controls died from natural causes or as a consequence of a fatal, non-suicidal accident. No differences between the two groups were found in the number of arrested persons, the frequency of arrests, the attribution of the arrest to felony or misdemeanour, and the number of individuals charged with violent crimes. Contrary to expectation, female suicides showed significantly less evidence of criminal history than did the controls.

While these investigations yield negative results, both suffer from methodological shortcomings. Tuckman & Youngman (1965) were able to investigate only the local police records and, though this deficiency was eliminated by Bradley (1980), in both studies the control group was composed principally of persons who had died of natural causes. As the majority were relatively young, less than 65 and 60 years respectively, they must have suffered from a serious medical illness possibly over a long period of time. This fact could, of course, affect the liability of this group to commit criminal acts. In this paper we present the results of an investigation into the mutual relationship between criminal behaviour and completed suicide, using a control group selected from a population of living persons.

METHODS

In Switzerland the official death certificate has to be completed by a physician in every case of death. All medical personnel are obliged to report every suspicious death, including all cases of suicide, to the police authorities in order to facilitate their investigation. The criteria for such a notification include all cases of death which occur unexpectedly and suddenly, and which are not obviously due to disease. The investigating judge conducts the subsequent assessment in the light of the medical report, the results of the police investigation, and in the majority of cases the results of the medico-legal investigation at his disposal. All these data are contained in the police files, which thus represent an important tool for the investigation of suicide. In addition, when completing the death certificate every physician indicates whether suicide took place. Suicide is registered by the Federal Statistical Office, without recording personal names so that investigation of the individual cases is not possible from this information.

There is no Swiss official definition of suicide. The Federal Statistical Office relies completely

on the physicians, and the investigating judges decide on the basis of all information available to them. Nevertheless, there is a high level of agreement between the two assessments and the registrations. Thus in 1982, the year of the present investigation, 1574 suicides were registered by the Federal Statistical Office, and 1541 suicides were registered by the Swiss Central Police Office, the difference being only 2·1%.

The police authorities of the Canton of Bern granted us permission to scrutinize police files containing reports on individual suicides. All cases registered as suicides in the police files of the Canton of Bern during 1982 which were included in our investigation met the criterion of a deliberate act of self-destruction by external means – evidenced, for example, by the circumstances of the act, suicidal notes when available. While it is highly improbable that non-suicides were also included in our population, we cannot exclude the possibility that some suicides were overlooked. For the purpose of this investigation the following variables were recorded: sex, age, marital status, occupation, and exact place of residence.

The most complete registration of individuals' criminal activity in Switzerland takes place in the Swiss Central Criminal Records Department. All court-convictions are recorded, with the exception of small fines and some trivial offences. In addition, there is no compulsory registration for those under the age of 18, and no registration at all for those over the age of 80. As a rule, the records of all deceased persons (whether attributable to suicide or other causes) are destroyed immediately after the Swiss Central Criminal Records Department is informed of their death. To facilitate the study the destruction of all these records was postponed.

The control group was to be selected from the population of living persons. There is no central registration of the living population in Switzerland; such a registration takes place at the level of the local communities, which are highly independent. In order to obtain a matched control group, we contacted the local authorities of every community which was indicated in the police files as the place of residence of each individual suicide. In all, 97 local authorities were contacted: only one of them refused to collaborate.

In order to fulfil the requirements imposed by the regulations concerning the protection of citizens' personal data, the following procedure was chosen and proved to be practicable. Each local authority was provided with information, excluding the name, of the suicide. To structure the search for the controls and to indicate the starting-point for a search in the community file an initial letter of the potential control was also given. This letter was the next in the alphabet following the initial letter of the name of the suicide. Our collaborators from the respective local authorities were instructed individually by one of us (P.-A. E.) until we were sure that the procedure was clear, and this step was followed by written instructions.

Subsequently, the collaborator searched in the community file for a person of the same sex, age (a difference of ± 2 years was permitted), marital status and occupational level, in terms of the classification of Moore & Kleining (1960), starting with the initial letter indicated. The community file always contains a complete registration of all inhabitants whose permanent place of residence is in that particular community. Temporary absences, including long stays in hospitals or prisons, do not lead to the exclusion from the file. As a result of our procedure, we obtained pairs matched for the variables enumerated and the pairs were also matched exactly with regard to the place of residence. The names of living persons who were identified in this way as controls were given directly to the Swiss Central Criminal Records Department. The names of the suicides were also given to the same authority who provided us with extracts from the criminal records of suicides and controls when these were on the file.

Statistical evaluation was performed using the one-sample χ^2-test, the two-sample χ^2-test and the t-test.

RESULTS

The police files contained 217 suicides registered for the Canton of Bern in the year 1982. The residence of 13 suicides was outside the Canton of Bern. The main characteristics of the remaining suicide population ($N = 204$) – sex, age distribution, marital status, place of residence, and occupational level – are shown in Table 1 and compared with the corresponding data of the Statistical Office of the Canton of Bern

Table 1. *The distribution of the suicide population in comparison with the general population with regard to the main demographic characteristics*

Sex	Suicides ($N = 204$)	Population ($N = 912022$)
Men	72 5	48 8
Women	27·5	51·2
Significance	$\chi^2 = 22{\cdot}71$, df = 1, $P < 0{\cdot}001$	

	Men		Women	
Age (years)	Suicides ($N = 148$)	Population ($N = 445200$)	Suicides ($N = 56$)	Population ($N = 466822$)
⩽ 19	8 1	28·4	1·8	25·6
20–29	18·9	15·4	12·5	14·4
30–39	12·2	15·7	14·3	14·4
40–49	15·5	11·9	23 2	11·7
50–59	15·5	11·1	12·5	11·7
60–69	11 5	9·2	16·1	10 1
⩾ 70	18 3	8·3	19·6	12·1
Significance	$\chi^2 = 25{\cdot}69$, df = 6, $P < 0{\cdot}001$		$\chi^2 = 15{\cdot}48$, df = 6, $P = 0{\cdot}017$	

	Men		Women	
Marital status	Suicides ($N = 148$)	Population ($N = 445200$)	Suicide ($N = 56$)	Population ($N = 466822$)
Single	38·5	45·8	25·0	40·4
Married	39·9	47·7	39·9	45·5
Widowed	8·8	2·5	19·6	10·0
Divorced/separated	13·8	4·0	16·1	4·1
Significance	$\chi^2 = 14{\cdot}04$, df = 3, $P = 0{\cdot}003$		$\chi^2 = 8{\cdot}01$, df = 3, $P = 0{\cdot}046$	

Place of residence (No. of inhabitants)	Suicides ($N = 204$)	Population ($N = 915572$)
< 1000	17·7	11 3
1000–10000	38·2	50·2
10000–30000	7·3	9·0
30000–100000	14·7	13·6
> 100000	22·1	15·9
Significance	$\chi^2 = 8{\cdot}61$, df = 4, $P = 0{\cdot}072$	

	Men		Women	
Occupational level	Suicides ($N = 148$)	Population ($N = 445200$)	Suicides ($N = 56$)	Population ($N = 466822$)
Managerial/ professional	1·3	0·4	—	—
Sales/clerical	2·0	7·2	1·8	0·4
Craftsmen, foreman (skilled labourers)	25·7	19·4	8·9	14·5
Operatives (semi-skilled labourers)	48·0	42·2	17·9	32·6
Unskilled labourers	16·2	5·8	12·5	5·1
Housewives	—	—	55·3	24·9
Students	6·8	25·0	3·6	22·5
Significance	$\chi^2 = 27{\cdot}06$, df = 4,* $P < 0{\cdot}001$		$\chi^2 = 18{\cdot}71$, df = 4, †$P < 0{\cdot}001$	

Values shown are percentages.
* Rows 1 and 2 combined; † Rows 2 and 3 combined.

regarding the population of the Canton as a whole. There are some significant differences between both populations in respect of these characteristics. There is a clear predominance of men in our sample, an over-representation of the older categories in both sexes among suicides, and a striking excess of female suicides aged between 40 and 49 years. In both sexes of the suicide population there is an excess of widowed and divorced/separated over single and married individuals. With regard to the place of residence – specifically to the size of the community of residence – only the total numbers could be compared. There is a tendency towards an excess of suicides from the very small communities (rural communities with less than 1000 inhabitants) on the one hand, as well as from the largest community, namely the City of Bern itself, on the other. There is also an over-representation of suicides in the category of unskilled labourers as well as among housewives.

A total of 23 suicides had to be excluded from further investigation. In 1 case the community authorities refused to cooperate; 8 suicides under the age of 18 and 12 suicides over the age of 80 had to be excluded, as they were not registered by the Central Criminal Records Department. An adequately matched control could not be obtained in only 2 cases, both from very small communities. At the final count 181 suicides – 131 (75·4%) men and 50 (27·6%) women – entered the analysis, together with the same number of matched controls.

In all, 29 (16%) of 181 suicides as well as 20 (11%) of 181 controls were found to be registered by the Swiss Central Criminal Records Department. No more than 6 women (4 suicides and 2 controls) were found to be registered, corresponding to 12% of the criminal subgroup, so that the results relate predominantly to the male criminal population. Sex was the only personal datum provided by the Swiss Central Criminal Records Department, and due to the confidentiality checks the data did not reach us in the form of paired information. We were thus able to compare the whole group of suicides with the whole group of controls in respect of their criminal activity, but not to compare the personal features of the suicidal and non-suicidal criminals.

Table 2 presents the number of criminals among the suicide and the control group, as well as some of the characteristics of the criminal groups. There are no significant differences (at a probability level of 5%) with regard to all the data presented and, in particular, to the differences between the suicide and control group in respect of both the total number of

Table 2. *Number of criminals among the suicide and control group and some characteristics of both criminal populations*

	Suicides	Controls
Total population	181 (100·0)	181 (100·0)
Number of criminals	29 (16·0)	20 (11 0)
By sex (M, F)	25 (19·1), 4 (8·0)	18 (13·7), 2 (4·0)
Criminal population	29 (100)	20 (100)
Number of recidivists (> 2 convictions)	9 (31)	9 (45)
Total number of offences	78	56
Average number of offences/criminal	2·7 ± 3·2	2 8 ± 2·9
Total number of convictions*	51	41
Average number of convictions/criminal	2·0 ± 2·7	2·0 ± 1·7
Number of criminals violating†		
Traffic laws	18 (62)	10 (50)
Drug laws	1 (3)	4 (20)
Penal code	17 (59)	13 (65)
Crime against person	8 (27)	4 (20)
Crime against property	11 (38)	11 (55)
Others	5 (17)	6 (30)

* For this variable $N = 25$ in the suicide group: 4 first-time criminals committed suicide before being convicted.
† These categories are not mutually exclusive; an individual could fall into more than one of them.
The numbers in parentheses are percentages.

criminals and the number of recidivists. There are also no significant differences between the criminal suicides and criminal controls in the number of individuals prosecuted in the previous 3 years (45% *v.* 30%) or in the average time span between the first offence and suicide or corresponding point of time in the controls.

Of the 29 criminals who committed suicide, a small group of 8 (21%) did so either immediately after the criminal act or on the occasion of their arrest or soon thereafter. Three of them committed acts which were classified as violent (1 homicide, 2 kidnapping). Even when these 3 offenders are taken into consideration, there were only 4 violent offenders among the suicides, and the same number was found among the controls.

Criminal suicides and their controls do not differ in respect of the number of offences, the number of convictions or the number of criminals violating particular laws. However, as Table 3 shows, more than half the offences committed by suicides concerned a road traffic law. The most common group of offences committed by the controls were crimes against property.

As Table 4 demonstrates, there is no significant difference between criminal suicides and controls in respect of the maximum sentence which they have previously received. There is, however, a significant difference in the number of convictions that resulted in imprisonment, in probation (suspended imprisonment), and in fines. Criminal suicides were frequently sentenced to unconditional imprisonment. There is a link between the finding of the higher proportion of offences against the traffic laws committed by criminal suicides and the finding of a relatively high number of convictions resulting in imprisonment. Further, violation of the traffic laws was more frequently associated with unconditional imprisonment than were violations of other laws, especially when the violation resulted from alcohol intoxication.

Table 3. *Distribution of the offences committed by suicides and controls by the particular laws*

	Suicides	Controls
Traffic laws	43 (55)	15 (27)
Drug laws	1 (1)	5 (9)
Penal code		
Crime against person	10 (13)	7 (12)
Crime against property	18 (23)	20 (36)
Others	6 (8)	9 (16)
Total offences	78 (100)	56 (100)
Significance	$\chi^2 = 14{\cdot}19$, df = 4, $P = 0{\cdot}007$	

The numbers in parentheses are percentages.

DISCUSSION

All suicides registered by the police in the Canton of Bern during 1982 were examined, and the majority of suicides were probably registered. However, this population contained no heroin addicts, and we identified only one criminal suicide who had violated the drug laws. Suicide by addicts might therefore not have been recognized, unless they chose a suicidal method other than intoxication. In consequence, the finding of only one offence against the drug laws in our criminal suicides might have been an artefact. On the other hand, the most extended detailed investigations on suicides in the general population (Dorpat & Ripley, 1960; Barraclough *et al.* 1974; Robins, 1981) have detected only a very small number of addicts among suicides, and drug abusers who commit suicide probably do not do so by means of their primary drug of abuse (Saxon *et al.* 1978).

The suicides in this study differ from the overall population in respect of their general characteristics. The differences are typical for an unselected population of suicides and, as such, are well documented in the literature: the predominance of male suicides (Ruzicka, 1976); the high incidence of suicides among old men and middle-aged women (Holinger, 1980); the over-representation of widowed and divorced/separated individuals (Sainsbury, 1955); the high suicide rate in towns (Cavan, 1928; Sainsbury, 1955) as well as in rural areas of a low population density (Capstick, 1960*b*); and the higher frequency of suicides among unskilled labourers (Lalli & Turner, 1968) and housewives (Cumming *et al.* 1975). All these differences underline the need for precise matching in the controls in order to examine the relationship between suicide and other variables such as criminality.

Despite our attempts to match the controls as closely as possible, there remains some uncertainty because of our inability to exercise personal control of the matching procedure. All

Table 4. *Distribution of suicides and controls (criminals and convictions) and convictions by the degree of punishment*

	Imprisonment	Probation	Fine	Total	Significance
Number of criminals					
Suicides	8 (32)	10 (40)	7 (28)	25 (100)	NS
Controls	4 (20)	11 (55)	5 (25)	20 (100)	
Number of convictions					
Suicides	22 (43)	14 (28)	15 (29)	51 (100)	$\chi^2 = 7{\cdot}27$ df = 2 $P = 0{\cdot}026$
Controls	8 (20)	21 (51)	12 (29)	41 (100)	
Number of convictions					
Violation of traffic laws only	18 (41)	8 (18)	18 (41)	44 (100)	$\chi^2 = 11\ 57$ df = 2 $P = 0{\cdot}003$
Violation of another law only	9 (23)	21 (54)	9 (23)	30 (100)	

In every case only the most serious punishment was taken into consideration.
Numbers in parentheses are percentages.

our collaborators were willing to cooperate and we were particularly careful to clarify the procedure so that bias in the identification of controls was minimized. However, the unavailability of the personal characteristics of our criminal suicides and their controls renders it possible that the results of the comparison of these two groups might have been influenced by uncontrolled variables.

The finding that there is no difference between suicides and controls in respect of their criminal history represents the most striking result of our study. The numbers with a criminal record – 16% of suicides and 11% of controls – are slightly higher than those reported by Tuckman & Youngman (1965), who could only examine local police records, in which they found a criminal history in 13% of suicides and 8% of controls. They are much lower than the results of Bradley (1979), who found 33% of suicides and 35% of controls to have had a record of arrest. As we included only registered sentences, our figures are understandably lower than registered arrests. Using a more sophisticated method regarding the choice of controls we were able to reproduce the findings of Tuckman & Youngman (1965) and Bradley (1979), namely that there is no direct relationship between criminal behaviour and suicide. We are not able to explain the conflicting results of Beskow (1979), who found an increased rate of criminality among Swedish male suicides.

Can the suicide rate among criminals be affected by the overall crime rate of the population? In countries with insignificant homicide rates it is known that the percentages of the killers who later commit suicide is high. However, both Sweden and Switzerland are in this category (Schipkowensky, 1973) and we cannot answer the question in a more general manner because of a lack of data. Nevertheless, in view of the unequivocally negative results of all these studies which have investigated specifically the relationship between suicide and criminality – i.e. Tuckman & Youngman (1965), Bradley (1979), and the present study – and taking account of the heterogenous and far from conclusive results of investigations furnishing indirect evidence, we would contest the assertion by Lester (1983) that there is 'a consistent association between criminality and suicide'. There appears to be no direct relationship between these two phenomena, even though occasionally they are associated with another variable like alcoholism.

More than half of all the offences committed by criminal suicides consisted in violation of the road traffic laws which thus play an important role in this sphere. There is a group of suicides who repeatedly violate the road traffic laws and who are consequently more severely punished. Prosecution for these offences is markedly severe in Switzerland, especially if they are in connection with alcohol intoxication. Violations of traffic regulations can be seen as risk-taking behaviour which can lead to accidents, and the relationship between road accidents and suicidal behaviour has been noted by several investigators. Some suicidal patients contemplate a car accident as a method of self-destruction (Hamburger, 1969).

Suicidal individuals experience significantly more road accidents and injuries (Selzer & Payne, 1962; Whitlock & Broadhurst, 1969; Crancer & Quiring, 1968) and break the traffic laws more frequently (Crancer & Quiring, 1968) than controls, even though the former finding has not subsequently been confirmed (Kennedy *et al.* 1971). Case reports demonstrate that some car accidents are, in fact, suicidal gestures (Ford & Moseley, 1963; Sjövall, 1966): at least 1–3% (Händel, 1982; Imajo, 1983) of car crash fatalities are deemed to be suicides. There are similarities between automobile fatalities and suicides, such as a tendency to abuse alcohol or to impulsivity (Tabachnik *et al.* 1966). Futher, rates of death caused by motor vehicle accidents are positively correlated with suicide–homicide rates across various geographical areas (Porterfield, 1960), and the frequency of traffic accidents is known to increase after a well-published suicide (Phillips, 1977).

Alcoholic drivers are responsible for significantly more traffic accidents and violations than non-alcoholics (Selzer *et al.* 1967). They also have a high rate of other types of crime and many of them do exhibit serious depressive symptomatology including suicidal ideation (Grimmond, 1974). Alcohol played an important, but not an exclusive, role in regard to the high frequency of traffic law violations committed by our criminal suicides, as these violations encompass the whole spectrum of traffic law offences. Freud (1901) suggested that accidents carry a psychological meaning and do not occur exclusively by chance or for physical reasons, and Menninger (1938) asserted that automobile accidents are sometimes determined by unconscious suicidal impulses. Risk-taking behaviour, which can lead to violations of the traffic laws and to accidents, is also a component of suicidal behaviour (Stengel, 1964). Our results support some of these assumptions. The tendency of our criminal suicides to violate the road traffic laws and thus their tendency to risky dangerous driving is in accord with the hypothesis viewing such behaviour as a suicide equivalent.

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